RECORDS AND NOTES OF NEARCTIC MECOPTERA AND RAPHIDIODEA.

By F. M. Carpenter, Harvard University, Cambridge, Mass.

Some of the scorpion-flies and snake-flies which have passed through my hands during the past year are of unusual interest, either because of their locality data or of the rarity of the species represented. These records have been brought together in this paper. Included also are some notes, which I made during the past summer, on the types of Nearctic Mecoptera contained in certain European Museums. I am indebted to the individuals mentioned below for sending me material for examination.

Order MECOPTERA.

Family Panorpidae.

Brachypanorpa oregonensis (MacLachlan)

Several specimens of this uncommon insect, contained in the National Museum collection, were kindly sent to me by Mr. A. B. Gurney. One of these, a male collected at Neola, Utah (July 13, 1935, F. C. Harmston), is of particular interest, since it is the first record of the species (or of the genus) in that state. This extends greatly the range of the insect, which has previously been found only in Oregon and Idaho. A study of these new specimens and of an additional series from Oregon sent by Mr. Gurney has convinced me that *oregonensis* is the only valid species of the genus at present known from the western states, *B. montana* Carp. (Bull. Mus. Comp. Zool., 72, 1931, p. 212) being a synonym. The specimens now at hand show an intergradation of the characteristics which I had previously supposed distinguished the two species. Unfortunately in *Brachypanorpa,* as in *Panorpodes,* the male genitalia show almost no specific differences; the male of *carolinensis* Banks, from North Carolina, is nearly identical with that of *oregonensis,* though the females are decidedly different. *B. montana* was based upon a series of males which appeared to possess distinctive coloration, but it now seems clear that the species is highly variable in this respect.

Panorpa venosa Westwood

I have recently examined the types of this species in the British Museum. There are two of these, both females, from Georgia. One is obviously identical with the species which I considered to be *venosa* in my revision of the Nearctic Mecoptera (Bull. Mus. Comp.

Zool., 72, 1931, p. 234). The other, which lacks the tip of the abdomen, is not the same species; it is undoubtedly *isolata* Carp. (1931), which is very common in Georgia. To avoid confusion and changes of names, the former specimen is hereby designated the lectotype of *venosa*.

Ten specimens of *venosa* were collected at Knoxville, Tenn., May 22 and June 5, 1936 (D. A. Johnson), these constituting the first record for that state.

Panorpa americana Swederus

One specimen of this species was collected at N. Augusta, Miss. (Oct. 3, 1931, H. Dietrich); it is the first record of *americana* in that state. Four specimens were also taken at Yonah Mt., Georgia (June 10–20, 1937, P. W. Fattig), these being the only specimens recorded from Georgia in addition to the types, which were collected more than forty years ago.

Panorpa refuscens Rambur

In my revision of the Nearctic Mecoptera (p. 237) I remarked that the type of *rufescens* was contained in the Royal Museum of Natural History at Brussels. This assertion was based upon a statement (*in litt.*) by Dr. A. Ball, who had kindly sent me notes and drawings of the specimen. During a recent visit to the Brussels Museum, I examined this specimen but failed to find any evidence of its being the type of *rufescens*. It was not marked "type" and had no label in Rambur's writing, but did possess determination labels of Navas and Esben-Petersen. After I discussed the matter with Dr. Ball, he agreed that it was not the type of *rufescens,* as he had previously supposed. This opens again the question of the identity of *rufescens,* the type apparently being lost.[1] It seems advisable, under the circumstances, to recognize *rufescens* as it has been treated in the past by Banks and myself.

In this connection mention should also be made of the type of *Panorpa debilis* Westwood, which has been regarded as a synonym of *rufescens* (*confusa* Westwood). In the British Museum there is a female *Panorpa* labeled *debilis* which bears a type label; this is the same species as *canadensis* Banks, not *rufescens*. But since

[1] In Horn and Kahle's "Uber entomologisch Sammlungen," the disposition of the Neuroptera in Rambur's collection is given as follows: "Neuropt. u. Odonat. via M.E. de Selys-Longchamps au Mus. Roy. Hist. Nat. Belg., Brussels." The supposed type mentioned above was one of Latreille's specimens, which were also included in the de Selys-Longchamp material.

Westwood's description of *debilis* mentions only *two males,* this specimen cannot be a type. As in the case of *rufescens,* it seems advisable to continue to regard this species as it has been treated in the past.

Panorpa robusta Carp.

Two males of this rare species were collected by P. W. Fattig at Dacula, Georgia, May 23, 1937. These are the only specimens known to me in addition to the unique type, which was taken at Meredith, South Carolina.

Panorpa neglecta Carp.

Two specimens of this insect, previously known only by the male (type locality, Auburn, Alabama), were collected by P. W. Fattig in Georgia, a male at Blairsville, Aug. 31, 1929, and a female at Dallas, Sept. 26, 1937. Since the female of *neglecta* has not previously been known, the above-mentioned specimen is here designated as the allotype. The wing markings are like those of the male type, and the female of this species will run to couplet 20 of my key to the females of *Panorpa* (1931, p. 226). From the two species (*venosa* and *virginica*) included there, *neglecta* can be distinguished by the structure of the internal skeleton of the ninth abdominal segment (figure 1A). This is rather broad, with the axis projecting beyond the plate, the two elements of the projecting axis being widely divergent. There is a small envelope surrounding the anterior part of the plate, with a dark spot at each side.

Panorpa flexa Carp.

Five additional specimens of this uncommon species have been recently sent to me for determination. Four of these (1 ♂, 3 ♀♀) were collected at Yonah Mt., Georgia, June 10 and 20 (P. W. Fattig). These are the first records from Georgia, the species having been found previously only in North and South Carolina. The fifth specimen is a male collected at N. Park, Smoky Mts., N. Carolina, Aug. 5, 1934 (Bradley and Knorr).

Panorpa submaculosa Carp.

The first Wisconsin record of *submaculosa* is a male, from Merril, on the Wisconsin River, July 1–2, 1933 (Ross and Mohr).

Panorpa nebulosa Westw.

Eight specimens of this insect were collected at Knoxville, Tenn. (June 5, 1936, D. A. Johnson), constituting the first records of the species in that state.

Family Bittacidae.

Bittacus occidentis Walker

One specimen was collected at Norris, Tenn. (June 21, 1937, G. B. Huffaker); it is the first record in the state.

Bittacus strigosus Hagen

One specimen taken at Knoxville (June 8, 1936, G. B. Huffaker) constitutes the first Tennessee record.

Family Boreidae.

Boreus brumalis Fitch

A female, collected in the Smoky Mts., Tenn. (January 30, 1938, 4000 ft. elevation, A. C. Cole) seems to belong without question to *brumalis*. This is by far the most southern record of this insect, and of the genus in the eastern states. The wing pads of this specimen are lighter in color than they are in other specimens which I have seen, but there seem to be no structural differences between this insect and more typical members of the species.

Boreus nivoriundus Fitch

A male of this species was collected at the same locality as the foregoing insect (A. C. Cole), and it is also the first record of the species in Tennessee. The specimen is a typical *nivoriundus* in all respects, except that the body is somewhat darker. The margin of the hypandrium is entire, as in *nivoriundus*. When I first examined the two specimens of *Boreus* recorded here, I assumed they represented a single, undescribed species; but since there are no morphological differences to distinguish them from *brumalis* and *nivoriundus,* respectively, and since the two latter insects frequently occur together, I have concluded they are only atypically colored specimens of those species.

Order RAPHIDIODEA.

Family Raphidiidae.

My attention has recently been called to the omission of the last couplet of the key to the males of *Agulla* (pp. 114–115) contained in my revision of the Nearctic Raphidiodea (Proc. Amer. Acad. Arts Sci., 71: 89–157). This couplet, which would have been numbered 18, was intended to distinguish the two species of subgenus *Alena,* as follows:

Pterostigma more than 3 times as long as wide; dorsal process of harpogones extending beyond epiproct ..... *minuta* Banks.

Pterostigma at most twice as long as wide; dorsal process of harpogones much shorter than epiproct ..... *distincta* Banks.

Agulla flexa Carp.

One male of this rare species was secured at Thorndike, Panamint Mts., Inyo Co., Calif. (May 30, 1937, E. C. Van Dyke). It is of interest, not only as the first Californian record of the species, but also because it gives an idea of the variation of the parameres in this species. In the two types these were reduced to a pair of thick semicircular structures; in the new specimen they are decidedly flatter and contain some vestiges of the ridges present in most other species of *Agulla*. The harpogones, however, are exactly like those of the types, there being a large lobe just below the curved tooth. This is the most obvious characteristic of the species, and since there was no figure of it in my revision of the Raphidiodea (Proc. Amer. Acad. Arts Sci., 71: 89–157), one is included here (figure 1B).

Inocellia inflata Hagen

In the California Academy of Sciences there are two specimens (♀♂) from Utah, St. George (May 28, 1935, E. C. Van Dyke) and Mt. Carmel (May 30, 1935, E. C. Van Dyke). These are the first records of the species or of the genus in the state.

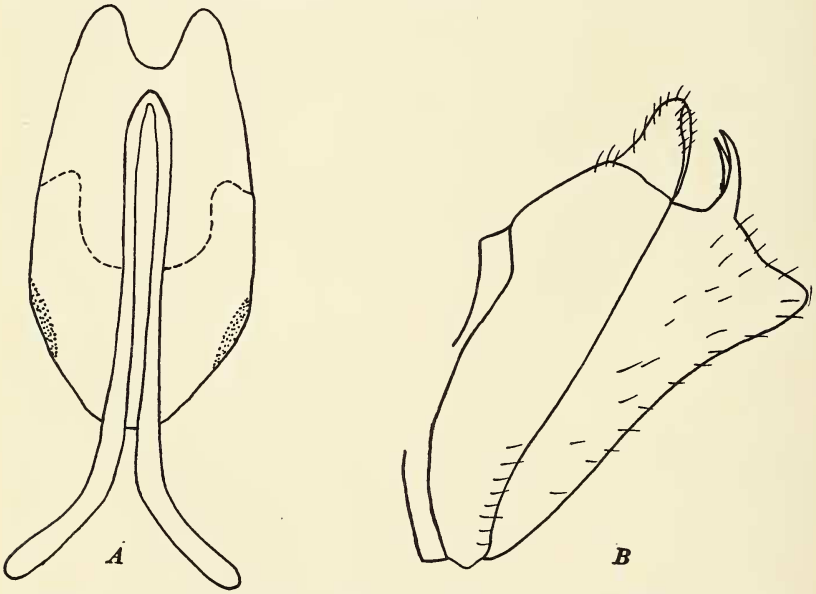

FIG. 1. A, *Panorpa neglecta* Carp., internal skeleton of ninth segment of female (allotype). B, *Agulla flexa* Carp., terminal part of abdomen, showing distal lobe of harpogones; drawn from holotype (♂).